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| APPLICATION NO.   | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 10/521,112  | 08/16/2005  | Kiyohide Sakai       | 403304/SAKAI        | 4558             |
| 23548   | 7590        | 06/30/2006           | EXAMINER            |                  |
| LEYDIG VOIT & MAYER, LTD<br>700 THIRTEENTH ST. NW<br>SUITE 300<br>WASHINGTON, DC 20005-3960 |             |                      | PAK, SUNG H         |                  |
|   |             |                      | ART UNIT            | PAPER NUMBER     |
|   |             |                      | 2874                |                  |

DATE MAILED: 06/30/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                        |  |                     |  |
|------------------------------|------------------------|--|---------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b> |  | <b>Applicant(s)</b> |  |
|                              | 10/521,112             |  | SAKAI, KIYOHIDE     |  |
|                              | <b>Examiner</b>        |  | <b>Art Unit</b>     |  |
|                              | Sung H. Pak            |  | 2874                |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 and 12-16 is/are rejected.
- 7) ☒ Claim(s) 11 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 1/12/05 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>1/12/05</u> . | 6) <input type="checkbox"/> Other: ____.  |

## **DETAILED ACTION**

### ***Information Disclosure Statement***

Information disclosure statement received on 1/12/2005 has been considered.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-5, 9-10 are rejected under 35 U.S.C. 102(b) as being anticipated by JP 4-88308 A (JP'308).

JP'308 reference discloses an optical device with all the limitations set forth in the claims, including: a lens disposed in a lens holding member which condense signal light emitted from the optical fiber ('7' Fig. 1a); a reflecting mirror which has a quadric surface which reflects the signal light condensed by the lens ('8' Fig. 1a); a light detecting element which detects the signal light reflected by the reflecting mirror and converts the signal light into an electric signal ('2' Fig. 1a);

wherein a real image at an emitting point of the signal light in the optical fiber is imaged by the lens with respect to virtual image of a light detecting face of the light detecting element formed on an optical axis of the lens by the reflecting mirror (inherent property of the lens-reflector components of Fig. 1a);

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wherein the reflecting mirror is a parabolic mirror having an axis (abstract);

wherein the signal light condensed by the lens is incident on the reflecting surface generally parallel to the axis of the quadric surface, and reflecting mirror by approximately a radius is reflected from the quadric surface (Fig. 1a);

wherein the signal light incident is reflected at approximately a right angle from the quadric surface (Fig. 1a).

Regarding claims 9 and 10, claim 9 recites product-by-process limitations and claim 10 recites functional limitations (see MPEP 2113 and 2114). “[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production.” In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). Also, “[w]hile features of an apparatus may be recited either structurally or functionally, claims directed to an apparatus must be distinguished from the prior art in terms of structure rather than function.” In re Schreiber, 128 F.3d 1473, 1477-78, 44 USPQ2d 1429, 1431-32 (Fed. Cir. 1997). Since JP’308 refernece fully discloses the claimed STRUCTURE of the instant application (claim 9) and is capable of performing the function claimed in the instant application (claim 10), the claim rejection is proper.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

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having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 6-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 4-88308 A (JP'308).

JP'308 discloses an optical device with limitations set forth in the claims as discussed above, except it does not explicitly state that the reflecting mirror is a hyperboloid or that the lens is spherical. However, the use of a hyperboloid mirror or a spherical lens is common and well known in the optical coupler art. Such elements are well known to be advantageous and desirable because they allow for efficient optical coupling with low loss. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the device of JP'308 to have a hyperboloid mirror or a spherical lens as claimed.

Claims 8, 12-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 4-88308 A (JP'308) in view of JP 2001-345456 A (JP'456).

JP'308 reference discloses an optical device with limitations set forth in the claims as discussed above, except it does not explicitly teach the use of a trans-impedance amplifier and a capacitor as claimed in the instant application.

However, the use of a trans-impedance amplifier and a capacitor disposed on a base is well known and common in the optical detector art, for example, as taught by JP'456 reference (Figs. 1-5). Such arrangement is considered advantageous and desirable in the art because it allows for high efficiency light detection and light processing and provides for a more efficient optical communications device. Therefore, it would have been obvious to person of ordinary

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skill in the art at the time the invention was made to modify the device of JP'308 to have a trans-impedance amplifier and a capacitor as taught by JP'456.

Claims 15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 4-88308 A (JP'308) in view of JP 2001-345456 A (JP'456) as applied to claims above, and further in view of Moriyama et al (US 6,257,773 B1).

JP'308, in view of JP'456, renders claimed limitations obvious as discussed above. However, it does not explicitly teach the use of a cap member and a stem, or the use of a window member, and a stem as claimed in the instant application.

On the other hand, Moriyama reference fully teaches the use of a stem element, a cap member for holding the optical fiber having a through hole for passing the light beam (Figs. 10A-10C), a window member ('18' Figs. 10A-10B); a stem element ('2' Figs. 10A-10B). Such elements are considered advantageous and desirable in the art because they allow for accurate and precise optical coupling between the transmission optical fiber and light receiving device. Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the device of JP'308 to have the cap member and the stem element, or the window member and a stem member as taught by Moriyama reference.

#### ***Allowable Subject Matter***

Claim 11 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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The following is a statement of reasons for the indication of allowable subject matter: a light receiving module having a lens and a quadric reflector is known in the art as discussed above. However, none of the prior art fairly teaches or suggests such light receiving module wherein the lens has a magnification power of at least one and no more than three, the reflector having a magnification of at least  $1/6$  and no more than one, and the overall magnification including the lens and the reflector being at least 0.5 and no more than one, as claimed in the instant application.

### ***Conclusion***

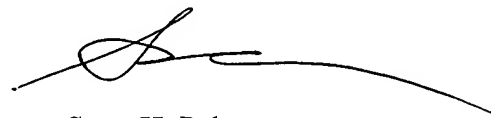
The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Kragl (US 6,813,418 B1) discloses a light receiving/ transmitting module with quadric reflector. Kubena et al (US 5,335,243) discloses an optical receiving device having an amplifier connected to a light receiving element.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sung H. Pak whose telephone number is (571) 272-2353. The examiner can normally be reached on Monday- Friday, 9AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rodney Bovernick can be reached on (571)272-2344. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

A handwritten signature in black ink, appearing to read 'Sung H. Pak', with a long horizontal flourish extending to the right.

Sung H. Pak  
Primary Patent Examiner  
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